

HAYNES et al  
Appl. No. 09/960,717  
August 21, 2003

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Cancelled).
2. (Cancelled).
- 2 ~~3~~. (Previously Presented) The immunogen according to claim ~~1~~<sup>1</sup> wherein said ligand is an antibody, or Fab<sub>2</sub> or Fab fragment thereof.
- 3 ~~4~~. (Previously Presented) The immunogen according to claim ~~1~~<sup>1</sup> wherein said ligand binds to a CCR5 binding site on gp120 and upregulates a CD4 binding site on gp120.
- 4 ~~5~~. (Original) The immunogen according to claim ~~4~~<sup>3</sup> wherein said ligand is an antibody, or Fab<sub>2</sub> or Fab fragment thereof.
- 5 ~~6~~. (Original) The immunogen according to claim ~~4~~<sup>3</sup> wherein said ligand is monoclonal antibody (mab) 17b, or Fab<sub>2</sub> or Fab fragment thereof, or mimic thereof.
- 6 ~~7~~. (Previously Presented) The immunogen according to claim ~~1~~<sup>1</sup> wherein said ligand upregulates a CCR5 and a CD4 binding site on gp120.

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7 <sup>6</sup>8. (Original) The immunogen according to claim <sup>6</sup>7 wherein said ligand is an antibody, or Fab<sub>2</sub> or Fab fragment thereof.

8 <sup>6</sup>9. (Original) The immunogen according to claim <sup>6</sup>7 wherein said ligand binds to a site on gp120 to which mab A32 binds.

9 <sup>8</sup>10. (Original) The immunogen according to claim <sup>8</sup>9 wherein said ligand is mab A32, or Fab<sub>2</sub> or Fab fragment thereof, or mimic thereof.

11. (Cancelled).

10 <sup>1</sup>12. (Previously Presented) The immunogen according to claim <sup>1</sup>16 wherein said protein is in soluble form.

11 <sup>1</sup>13. (Previously Presented) The immunogen according to claim <sup>1</sup>16 wherein said protein is associated with a cell vesicle or liposome.

14. (Cancelled).

12 <sup>1</sup>15. (Previously Presented) The immunogen according to claim <sup>1</sup>16 wherein gp120, gp41 and said ligand are crosslinked.

16. (Currently Amended) An isolated immunogen comprising an HIV envelope protein bound to a ligand, which ligand upregulates at least one of the CD4

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binding site and the CCR5 binding site on said protein,

wherein said protein is gp120 ~~noncovalently~~ bound to gp41, and

wherein said immunogen further comprises an HR-2 peptide bound to said protein.

<sup>13</sup> 17. (Original) The immunogen according to claim <sup>1</sup>16 wherein gp120, gp41, said ligand and said HR-2 peptide are crosslinked.

18-27. (Cancelled).

<sup>14</sup> 28. (New) The immunogen according to claim <sup>1</sup>16 wherein gp120 is noncovalently bound to gp41.